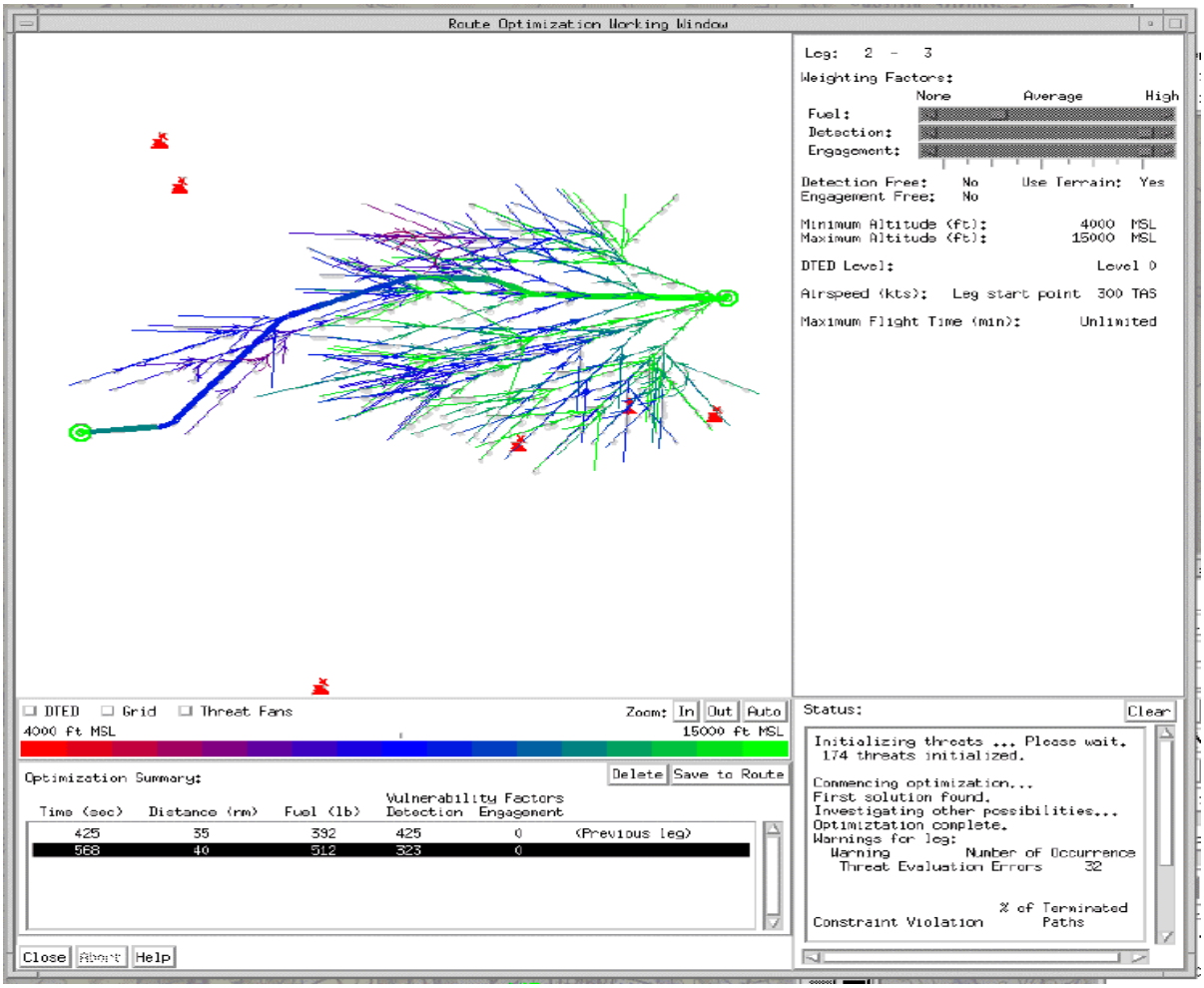
Exhibit A



• Hardware “engine” which could solve gridded optimization problems
•2 second execution time to solve for least fuel route from Japan to West Coast US with complex jet stream over the Pacific
•Validated in related research projects and operational application
•The technology was spun off to Lockheed Georgia
•Minimized an “n” dimensional cost vector instead of a single weighted scalar
•Allowed absolute constraints in each dimension
•Allowed full deconfliction and accurate time over target
•Received Lockheed’s highest engineering award for the second time
•Corporate initiative for extremely heavy cargo lifter (500 ton payload)
•Used one year of 12 hour NCAR gridded wind and temperature data as real world baseline

- Simulated 6 months of operations using router and scheduling tools to:
  - Determine feasibility
  - Assess costs verses income
  - Assess “on time” reliability
  - Assess impacts of system level failures such as;
    - operational delays up to 24 hours
    - unscheduled out of service
- Elimination of single point failure threads to make system viable
- Router subjected to absolute constraints
  - avoid areas where wind speed was greater than a given speed (mostly storms)
  - avoid terrain at specified values
  - avoid certain political/cultural boundaries
  - avoid temperatures lower than a given temperature
- Absolute constraints (all aircraft):
  - safety margin of “n” minutes loiter
  - safety margin of “n” nm
  - able to safely divert at all times including if refueling failed
  - router could accept manually inserted points
- Virtually every route into prevailing winds beat the no wind transit time
- 90% of the flights from US to Japan, into the prevailing winds, were faster than no wind transit time
  - The router used cyclones, (lows) and anticyclones, (highs) as “slingshots”
- Flight plans were matched to rendezvous points with tanker aircraft
- Emphasis on crew costs, cost of time on engines, variability of weather
- Cartesian grid of nodes and edges
- 3D routes with 8 or 16 possible headings
- Original router capable of calculating the optimal path from more than 10123 possible routes (later versions are improved)
- By comparison, the US air traffic corridors form a “trivial” digraph
- True 3D, free space routing
- Altitudes can be constrained to 1000 foot increments using both constant MSL and terrain following at the same time
- It is possible to mix grid, arbitrary network, and no grid solution spaces into a fused solution

•For example, the arbitrary network and the no grid approach could be combined to allow the router to find the overall optimal route
  - –across the US in controlled corridors
  - –best point to depart into “free” space across the Pacific
  - –best point to reenter controlled air space elsewhere
  - –to landing
  - –and, maintain divert and flight minimums

•Both the speed of the computers and the algorithm efficiency have improved by orders of magnitude since original release
•Processing run of algorithms on a 1000MHz machine would do global route optimization in less than 1 second

Exhibit A